

## The challenges we face while developing a HoloLens application for forensic investigators

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« waakzaam en dienstbaar »

## **HoloLens & Forensics**

2012-2015, CSI the Hague:

A project for companies and knowledge institutes to demonstrate their joint capabilities for innovation of CSI Methods and Technology, coordinated by the Netherlands Forensic Institute (not by the police)



The first prototype of mixed reality glasses



## **HoloLens & Forensics**

Why did we need innovation?

Microtraces like DNA can provide strong evidence, but... are often invisible and not always related to the crime that is being investigated



The second prototype of MR glasses



### **Invisible traces like DNA**





In the last 20 years many new techniques have been developed to get information from (almost) invisible microtraces like DNA

### How to avoid contamination



CSI's are packed with all the gear they need on the crime scene... and actions are necessary to avoid contamination

### **Detection of traces**



### Forensic light sources

### Which traces are relevant?

Unforeseen new traces. Which traces are related to the crime under investigation?



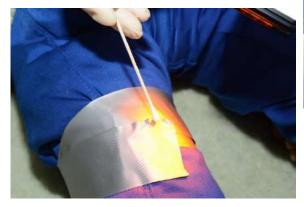
### **Testing traces**



### On site testing

## **Collecting and documentation**







Sampling and documentation of invisible trace material

### **The Hololens Forensic Toolbox**

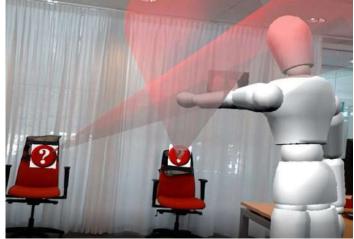




### **The Hololens Forensic Toolbox**







### **The Hololens Forensic Toolbox**



# **HoloLens & Forensics**

### Summary

- Challenges in modern CSI:
  - Contamination
  - Registration/documentation
  - Communication
  - CSI strategy/working plan



- Share knowledge and learn from each other



# Join forces, cocreat!

### Who are we and why the collaboration?

### Technology pusher vs. critical customer





### Our goal? To make the CSI more effective and efficient



# The toolkit





- Forensic Investigation

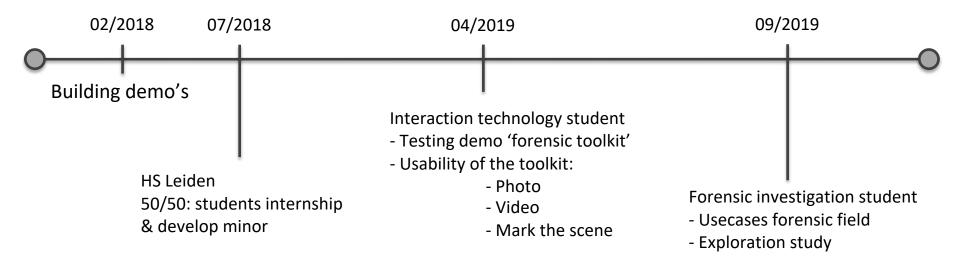
- Software engineering

- Interaction technology student

- Game design

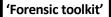
- Business data

- Forensic ICT





## The first demo



- Photo

- Video
- Mark the scene

### 'First respons' - Resistance

- Unknown

- Try-out

#### 'Gain interest'

- Learning by doing

- Brainstorm/collect

- Use feedback

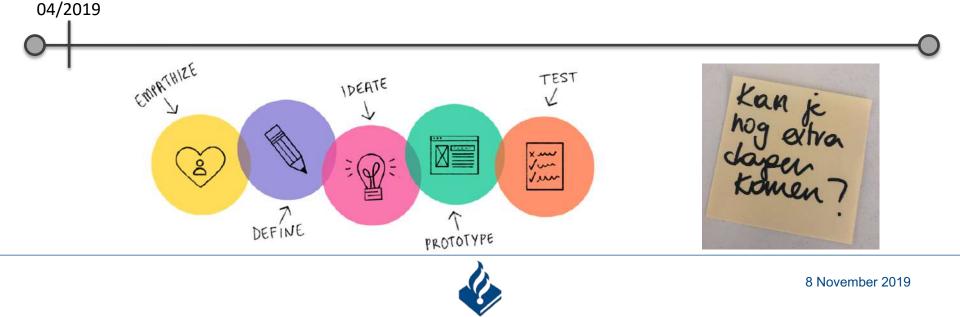
#### 'Callaboration'

- Focus on their needs

- Prioritise together

- Experiment

### Then the toolkit itself will show it's profit





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### Top 3 (all specialists)

- Less clicks
- Photo frame
- Marking the scene

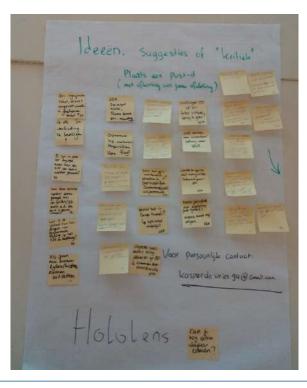








# Technology pusher vs. critical customer



#### Top 3 (digital)

- Hotspots (pop-up)
- Categories by scenarios
- Zoom in (photos)

#### Top 3 (CSI)

- Speech to text (report)
- Record action with location and label
- Register label and link to trace evidence

#### Top 3 (traffic)

- Record scene
- Record specific actions
- Marking the scene









# Now and future

'Internship'

09/2019

'Develop Minor Mixed Reality' Future topics & possible outcomes

Work with students on practical assignments!

Tool for training and education in a mixture of virtual, physical and simulated reality?

Tool for hypothesizing?

Tool for scenario testing, virtual reconstruction?

Tool for organizing a workflow with different experts in CSI?





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